Amendments to the Specification:

Please replace the paragraph, beginning at page 5, line 28, with the following rewritten paragraph:

Due to the limits imposed by the properties of the materials used for the existing all-optical switches, the fastest speed of all-optical switches is around 1 picosecond at the optical communication wavelength of about 1.55 μm. In addition, the fabrication process of some existing ultrafast optical switches is not compatible with the current silicon technology. Therefore, if one can find a faster nonlinear material with similar structure but easy to incorporate into the integrated system, one can improve the speed of the optical communication as well as reduce the price of the device.

Please replace the paragraph, beginning at page 9, line 2, with the following rewritten paragraph:

SWNTs (sometimes called "buckytubes") are hollow molecules of pure carbon linked together in an hexagonally bonded network to form a hollow ~~polymer~~ cylinder. The tube is seamless, with either open or capped ends, and is free of property-degrading flaws in the nanotube structure. The diameter of an individual SWNT is 0.7 to 2 nm, typically about 1.0 nm, which is about 100,000 times thinner than a human hair, about half the diameter of DNA, and about 1/10,000th the diameter of graphite fibers. Individual tubes are about 100-1,000 nm in length, hundreds of times their diameters, giving SWNTs a very high aspect ratio. Specifically, the aspect ratio of a SWNT is around 100-1,000, compared with about 1 for carbon black particles. The special nature of carbon combines with the molecular structure of SWNTs to give SWNTs exceptionally high material properties such as electrical and thermal conductivity, strength, stiffness, and toughness.

Please replace the tenth line in the Table on page 10 with the following rewritten line:

Polysiloxane	1.53-1.535	< 0.2 (1_{7}.33 μm)		200	Stable